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(54) IMPROVEMENTS RELATING TO THE CLEANING OF BEVERAGE DISPENSING SYSTEMS

(71) We, SCHWEPPE'S LIMITED, a British Company of 1-6 Connaught Place, London W2, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be described in and by the following statement:—

This invention relates to the cleaning of post-mix beverage dispensing systems of the type comprising a dispensing head, water supply pipes or passages and a water dispensing valve through which carbonated water can be passed to a water outlet in the dispensing head, syrup supply pipes or passages and a syrup dispensing valve through which syrup can be passed to a syrup outlet. The said water and syrup dispensing valves can be opened at the same time to enable carbonated water and flavoured syrup to be dispensed in to a drinking container held adjacent the dispensing head to provide a flavoured carbonated beverage. Such dispensing systems will be referred to hereinafter and in the appended claims as "post-mix dispensing systems as set forth".

For food hygiene reasons, the pipes or passages through which the syrup passes are required to be cleaned periodically. This is usually done by flushing the syrup pipes or passages with a detergent solution followed by flushing with clean water. In the conventional method, the syrup pipes or passages are cleaned by disconnecting the supply of syrup, and by first of all forcing the detergent solution through the pipes or passages to the syrup outlet using a supply of CO₂ gas and then by similarly forcing clean water through such pipes or passages to said outlet using either a supply of CO₂ gas or the mains water pressure.

This conventional cleaning method has a number of disadvantages. Firstly, it involves wastage of CO₂ gas, and secondly,

it requires the use of an additional container for the detergent solution and sometimes an additional container for clean water.

The present invention seeks to obviate or mitigate the aforementioned disadvantages.

In accordance with one aspect of the present invention there is provided the combination of a post-mix dispensing system as set forth and a receptacle for use in the cleaning of the post-mix dispensing system, the combination including means enabling the receptacle to be connected to the dispensing head of the dispensing system so as to be held in liquid tight contact therewith and so that the interior of the receptacle communicates with each of the outlets of the dispensing system, whereby the syrup pipes or passages and the syrup dispensing valve can be back-flushed by forcing carbonated water from the water outlet into the receptacle and out through the syrup outlet.

Preferably, the apparatus includes a clamp means by which the receptacle can be clamped to a dispensing head of the post-mix system in liquid tight manner, the dispensing head embodying both the water outlet and syrup outlet. The clamp means may comprise a ring which fits round the receptacle, a stirrup which is connected to the ring and is for engaging over the dispensing head and a screw carried by the stirrup for tightening the receptacle to the head. The receptacle may be made of transparent or translucent plastics material.

In accordance with another embodiment of the invention, there is provided a method of cleaning a post-mix dispensing system as set forth, wherein a receptacle containing a quantity of detergent is connected in a liquid tight manner to the post-mix dispensing system and in communication with the water and syrup outlets, the supply of syrup is disconnected

from the system and the detergent is back-flushed through the syrup pipes or passages by forcing carbonated water out of the water outlet, into the receptacle and out through the syrup outlet.

Preferably, after the back-flushing of the detergent, the receptacle is removed from the dispensing system, is rinsed to remove residual detergent, and is replaced, and then carbonated water is passed in a back-flushing manner through the syrup pipes or passages by being forced from the water outlet, into the receptacle and out of the syrup outlet.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawing, wherein:—

Figure 1 is a diagrammatic elevation, partly in section, of a post-mix dispensing system as set forth in combination with apparatus for use in the cleaning of the system; and

Figure 2 is a perspective view showing how the apparatus is fitted to the dispensing head of the post-mix dispensing system.

Post-mix dispensing systems as set forth are used extensively in the catering and licensed trades, and in other locations where it is desired to dispense carbonated beverages, and it is therefore in the interests of owners or users of such systems that a simple and effective means of cleaning the system should be available. In accordance with the embodiment of the invention illustrated in the drawing, the dispensing system is arranged to be supplied with a supply of clean water from a source indicated by numeral 10, and has a carbonater vessel 12 in which the water from supply 10 is mixed with carbon dioxide gas, a refrigeration unit 14 in which the carbonated water issuing from vessel 12 is refrigerated, and a dispensing outlet 16, from which the refrigerated carbonated water issues. The pipeline connecting the unit 14 and the outlet 16 passes through a dispensing head 18, and this pipeline also contains a water dispensing valve, not shown in the drawing. The water is fed from the supply 10 through the piping to the outlet 16 by a suitable pumping means, or simply by the mains water pressure.

In addition, the system is arranged to be connected to a supply, indicated by numeral 20, of flavoured syrup. The syrup passes from the supply 20 to a refrigeration unit 22, which may be one and the same as unit 14, and from the unit 22 the syrup flows through the piping shown to a syrup outlet 24 located adjacent the outlet 16. It is to be noted that the piping for the syrup also passes through the head 18, and it is also to be noted that the head

embodies a dispensing valve for the syrup, and, again, this valve is not shown in the drawing. The syrup is passed from the supply 20 to the outlet 24 by means of pressurised carbon-dioxide gas. The head 18 is also shown in Figure 2, and if reference is made to that figure, there will be seen an operating lever 26, the operation of which effects opening of the dispensing valves for the water and syrup. Normally, this lever 26 is operated by means of a cup into which the carbonated water and syrup are simultaneously discharged in order to produce a carbonated beverage in the cup, but in Figure 2 an apparatus has been connected to the head, and therefore the outlets 16 and 24 are not visible in that figure.

The said apparatus, which is illustrated generally by numeral 28, comprises a plastics material receptacle 30, having a peripheral shoulder 32 which, in the position shown, is engaged by a ring 34 of a clamping means, such means also including a U-shaped stirrup 36 which is pivotally connected to the ring 34, and on the cross-piece of the U-shape carries a clamping screw 38. Tightening of the screw in the position shown in Figure 2 clamps the receptacle 30 in a liquid-tight manner to a projecting portion 40 of the head 18, this portion being represented diagrammatically in Figure 1, and it will be seen that portion 40 is provided with the outlets 16 and 24, so that by so clamping the receptacle to the portion 40, the outlets 16 and 24 come into hydraulic communication with the interior of the receptacle. The top edge of the receptacle which bears against the portion 40 may be provided with a suitable sealing gasket of rubber or similar material. In order to release the apparatus from the head, it is simply a matter of loosening the screw 38.

In using the said apparatus, when it is clamped to the head as shown in Figure 2, the receptacle 30 can be provided with a quantity 42 of detergent solution, and the syrup piping is disconnected from the supply of syrup 20, and also, if necessary, from the refrigeration unit 22. The carbonated water is now forced through the outlet 16 into the container 30 by suitable opening of the dispensing valves, and if the quantity of detergent is provided in the receptacle 30, the mixture of carbonated water and detergent solution is back flushed through the syrup piping, as shown by the arrows in Figure 1, the syrup dispensing valve being held open for this purpose. This back flushed water or water and syrup is simply discharged to a drain, or into a bucket. After a suitable period of back flushing, the flow of water is terminated, the receptacle 30 removed, rinsed

and cleaned of any residual detergent solution, and is replaced in the Figure 2 position. When detergent is thus used, the syrup piping cleaning operation is completed by passing clean carbonated water through the syrup piping in a similar back flushing manner. In some cases the receptacle will not be removed but will remain in position during and between detergent and carbonated water back flushing. After the cleaning, the supply 20 and refrigeration unit 22 are reconnected to the syrup pipeline and the dispensing system is again ready for beverage dispensing. In some cases the refrigeration unit is omitted altogether.

In addition to the invention providing a means whereby there is a saving in carbon-dioxide gas, and also the use of additional containers is not required, the effectiveness of cleaning and flushing is, we feel, improved by using carbonated water, which can of course be used without detergent, as a scrubbing medium. Furthermore, the effectiveness of cleaning is also, we believe, improved by passing the cleaning and flushing liquids through the syrup piping in the opposite direction to normal flow, as this back flushing removes residues from difficult corners within the syrup piping.

We have illustrated and described one form of apparatus using a clamp means for connecting the receptacle to the dispensing head. It is to be appreciated that the receptacle could be liquid tight connected by other means, such as by a screw-threaded connection, or by a bayonet fitting arrangement.

WHAT WE CLAIM IS:—

1. The combination of a post-mix dispensing system as set forth and a receptacle for use in the cleaning of the post-mix dispensing system, the combination including means enabling the receptacle to be connected to the dispensing head of the dispensing system so as to be held in liquid tight contact therewith and so that the interior of the receptacle communicates with each of the outlets of the dispensing system, whereby the syrup pipes or passages and the syrup dispensing valve can be back-flushed by forcing carbonated water from the water outlet into the receptacle and out of through the syrup outlet.

2. The combination according to Claim 1, wherein said means includes a clamp by

which the receptacle can be clamped to a dispensing head of the system, which embodies both the water outlet and syrup outlet, in liquid tight manner.

3. The combination according to Claim 2, wherein the clamp comprises a ring which fits round the receptacle, a stirrup which is connected to the ring and is for engaging over the dispensing head and a screw carried by the stirrup for tightening the receptacle to the head.

4. The combination according to Claims 1, 2 or 3, wherein the receptacle is of transparent or translucent plastics material.

5. The combination according to any preceding Claim, wherein the receptacle includes a rubber or similar sealing gasket by which it can be liquid tight sealed to the dispensing head.

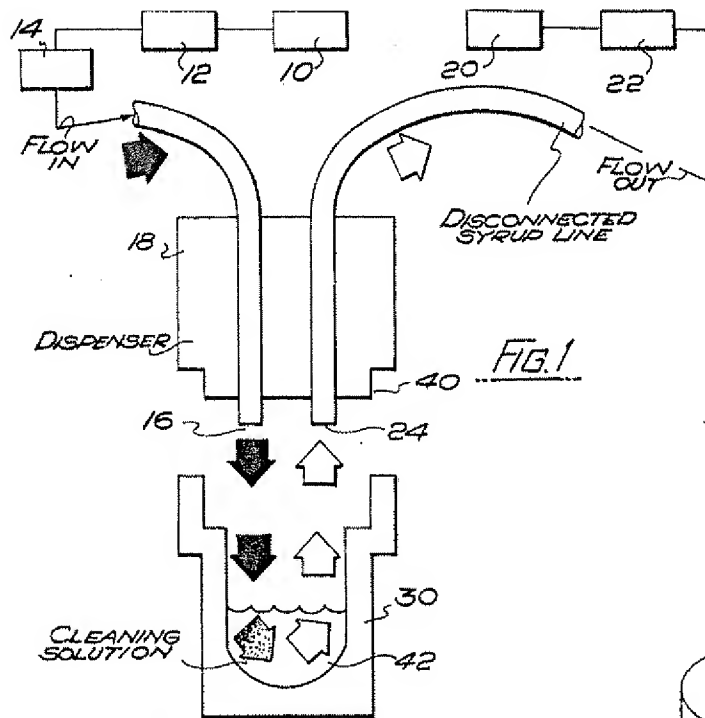
6. The combination of a post-mix dispensing system as set forth and apparatus for use in the cleaning of the post-mix dispensing system, substantially as hereinbefore described with reference to the accompanying drawing.

7. A method of cleaning a post-mix dispensing system as set forth wherein a receptacle containing a quantity of detergent is connected in a liquid tight manner to the post mix dispensing system and in communication with the water and syrup outlets; the supply of syrup is disconnected from the system, and the detergent is back-flushed through the syrup pipes or passages by forcing carbonated water out of the water outlet, into the receptacle and out through the syrup outlet.

8. A method in accordance with Claim 7, wherein, after the back-flushing of the detergent, the receptacle is removed from the dispensing system, is rinsed to remove residual detergent, and is replaced, and then carbonated water is passed in a back-flushing manner through the syrup pipes or passages by being forced from the water outlet, into the receptacle and out of the syrup outlet.

9. A method of cleaning a post-mix dispensing system as set forth, substantially as hereinbefore described.

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 CARBONATED WATER
 CLEANING MIXTURE

FIG. 2

